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Paper Authors **Dr. Hema Neelam**



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INVESTIGATING HOW CREDIT RISK AFFECTS THE FINANCIAL HEALTH OF INDIA'S COMMERCIAL BANKS

Dr. Hema Neelam

Asst, Professor

G.Narayanamma Institute of Technology and Science for Women(Autonomous)

Mail id:hema.neelam@gmail.com

Abstract:

For shareholders, managers, investors, regulators, and the general public, a bank's financial performance is of the utmost importance. In order to better understand how credit risk affects the financial health of Indian's commercial banks, this study focuses on non-performing loans. Economic value added and return on asset is employed as indicators of financial performance. Additionally taken into account are internal bank parameters including the bank's age and size. The analysis takes into account macroeconomic variables like the gross domestic product, inflation, and monetary policy rate. The analysis makes use of panel data on 15 commercial banks in India covering the years 2018 to 2022. Non-performing loans have a detrimental influence on both metrics of financial performance, according to the findings of the random effect estimate technique. Additionally, although not significantly for the economic value-added metric, the monetary policy rate has a detrimental effect on both financial performance indicators. Further research reveals that both indicators of financial success, except for return on asset, are significantly positively impacted by the size, age, and gross domestic product of the bank. It is recommended that commercial banks adopt strict credit risk management policies, which should also be updated on a regular basis to guide actions and processes to grant loans and monitor credit risk, based on the negative relationship between non-performing loans and financial performance. Furthermore, it is advised that the depreciable assets pledged to the banks as collateral be regularly (likely annually) examined to account for a fall in their value. The use of economic value-added as a financial performance indicator, which prior research have mostly neglected in the examination of the credit risk and financial performance nexus, is innovative in the current study.

Keywords: Credit risk; financial performance; non-performing loans; economic value- added; India.

I.INTRODUCTION

In economies, banks serve as profit-seeking middlemen between borrowers and lenders (Breuer et al., 2010). According to Marshal and Onyekachi (2014), commercial banks' role as financial intermediaries guarantees that money is invested in profitable initiatives. It is impossible to overstate the importance of commercial banks in economies. Governments implement monetary policies and connect the general public by issuing Treasury bills through commercial banks, which explains why this is the case. Additionally, commercial banks lend to industries for capital needs such as expansion. Generally speaking, as businesses grow their financial activities, the government receives more money through taxes. In general, when there is a strong and thriving financial sector, economies and industries operate well (Baidoo & Akoto, 2019; Baidoo et al., 2020; Sakyi).

It is known that the main activities of commercial banks are to collect deposits and make loans; these activities are also a substantial source of income for the banks (Baidoo et al., 2019). Commercial banks, however, run a variety of risks in carrying out these crucial tasks as financial intermediaries. Amidu and Hinson (2006) assert that since risks are unlikely to be entirely excluded from commercial banks' daily operations, effective risk management techniques should be put into place or included into their business plans.

Regarding credit risk and the financial performance of commercial banks, the study adds a little to the body of literature and information. More significantly, this analysis was conducted following the Bank of Indian's implementation of Basel I and II Pillar I, which focuses on operational, market, and

credit risks. The International Financial Reporting Standards (IFRS) 9 will be used by Indian banks for the impairment and provision of credit losses starting after the Bank of India adopted them. Thus, policymakers, bank employees, bank executives, board members, and financial investors, among others, would all find considerable value in the study's findings.

The rest of the paper is organised as follows: The literature review comes after, and then the empirical methodology. The fourth portion contains the findings and discussion, while the final section offers the study's conclusions and potential political ramifications.

II. LITERATURE REVIEW

This section discusses the theoretical and empirical literature that forms the basis of the investigation. The study takes into account the theories of information asymmetry, moral hazard, and adverse selection, as well as loan pricing theory and agency theory. The paragraphs that follow offer a brief overview of these ideas and a review of the relevant empirical research that has already been published.

Information asymmetry, according to Stiglitz (2002), is when one party to an economic transaction has access to more information than the other party. In order to support the notion of asymmetric information, Spence (1973) suggests a more plausible assumption. According to him, in a deal, one party frequently has more knowledge than the other party. A borrower frequently has a better understanding of their capacity to repay a loan than the lender does. Similar to this, a product's vendor is better knowledgeable about its quality than its purchaser. The directors of a firm are more knowledgeable about the actual performance of the company than the shareholders.

For many interactions in the economy, his hypothesis is crucial. Loan contracts are no different from other contracts in that they typically include both moral hazards and adverse selection. Although they frequently have more precise knowledge of their capacity to repay a loan, borrowers sometimes only provide information that will benefit them during the loan application process. According to Akerlof (1970), moral hazard is obvious in both the lender's and the borrower's actions, which could result in a bias towards competition and lower the quality of the goods and services offered. A moral hazard, according to Krugman (2009), is a situation in which one party decides how much risk to take with the understanding that the other party will be responsible for paying the price if something goes wrong. The main reason for is information asymmetry.

Embaye et al. (2017) demonstrate that the loans and advances ratio and non-performing loans significantly harm banks' financial performance as assessed by return on assets in Eritrea. The study also demonstrates that there is a negative correlation between financial success and credit risk, as determined by the capital adequacy ratio. Also revealed by Araka et al. (2018) is the relationship between interest rate regulations and non-performing loans, which has a detrimental effect on the financial health of Kenyan commercial banks. Furthermore, Oketch et al. (2018) demonstrate that there is a negative and significant correlation between banks' performance and their non-performing loan ratio. According to the study, loan loss default, capital adequacy ratios, and loan loss provisions have no impact.

Ekinci and Poyraz (2019) demonstrate in a related study that there is a negative correlation between non-performing loans and both return on assets and return on equity. Credit risk's effect on the Sri Lankan banking industry's profitability is evaluated by Herath et al. in 2021. Non-performing loans have a negative effect on return on assets, according to the report. The loan-to-deposit ratio and the net charge-off ratio, however, are shown to be irrelevant in describing the bank profitability in Sri Lanka. The study also shows a favourable association between capital adequacy ratio and returns on assets. Additionally, a study by Smarika and Sangeetha (2021) shows that non-performing assets and return on equity for commercial banks in India have a substantial negative association.

Reviewing the relevant literature revealed that return on assets, return on equity, and net interest margin have all been used to gauge bank performance. Past research have also utilised a variety of credit risk measures. The capital adequacy ratio and the non-performing loans ratio, however, are the most important metrics. Macroeconomic factors like the gross domestic product and inflation as well as bank size and managerial effectiveness have all been used to explain bank performance. Again, it is noted that there aren't many research done in India, and the results are inconsistent. More crucially, this study takes into account economic value-added, a crucial financial performance indicator that previous studies have largely disregarded.

Based on the theoretical and empirical reviews, the study tests the following hypothesis:

Non-performing loans impact negatively on financial performance of commercial banks.

III. EMPIRICAL METHODOLOGY

The methodologies employed to accomplish the study's goal—investigating the effect of credit risk on the financial performance of commercial banks in India—are the main emphasis of this section. The model specification, variable description, and estimating approach are all fully presented.

IV. DATA TYPE AND SOURCES OF DATA

The study makes use of secondary data from 15 Indian commercial banks from 2018 to 2022. The availability of data determined the banks and time frame for the current investigation. The yearly financial statements of the chosen banks are used to gather information at the bank level, including return on asset, economic value added, non-performing loan ratio, capital adequacy ratio, loans and advances ratio, size of banks, and age of banks. The Bank of Indian's database provides information on the monetary policy rate, while the India Statistical Service's database provides information on the gross domestic product and inflation. Additionally, India is the subject of this study because to the difficulties the country's financial industry has had throughout the years, particularly between 2018 and 2022, as was mentioned before in Section

V. DESCRIPTIVE ANALYSIS

Table 1 presents an overview of the descriptive statistics for the study's variables. Additionally, the correlation analysis for the two dependent variables (economic value added [EVA] and return on asset [ROA]) and the independent factors is looked at, and the findings are provided in Table 2 to make sure that the results obtained are not influenced by multi co linearity issue. Cogent Economics & Finance (2022), 10: 2109281, Kwashie et al.

Table-1: Summary of descriptive statistics

Var.	Mean	Median	Max	Max	SD
ROA	0.0447	0.487	0.12	-0.0362	0.0291
EVA	5.7102	11.3721	18.9721	-17.0781	12.0911
NPL	0.1722	0.13	0.721	0.0221	0.1231
LAR	0.5623	0.5478	0.1882	0.1882	0.2262
CAR	0.2315	0.2113	1.9032	0.0825	0.1962
SIZE	17.526	15.517	22.4311	13.8125	3.0215
AGE	3.3456	3.1718	4.8101	2.3975	0.75621
GDP	0.0513	0.0485	0.1732	0.0221	0.0231
INF	0.1421	0.1399	0.1742	0.0981	0.2917
MPR	0.2036	0.5065	0.251	0.1612	0.0362

Source: Author's estimation

Table 1 show that, in comparison to return on assets (ROA), the economic value-added measure (EVA) has greater mean, median, maximum, and standard deviation values. Investors and shareholders alike will benefit greatly from this move. This demonstrates that Indian banks actually generate value for shareholders and investors. Therefore, this results in higher dividend payments, which inevitably impacts the share price. The highest (lowest) values for the ratios of non-performing loans, loans, and advances, and capital adequacy are 0.720 (0.022), 1.227 (0.188), and 1.903 (0.083), respectively, with mean values of 0.171, 0.563, and 0.232, respectively.

Table-2: Correlation analysis results

Economic Value-Added (EVA)									
Var.	1	2	3	4	5	6	7	8	9
EVA	1.000								
NPL	-0.214	1.000							
LAR	0.123	-0.283	1.000						
CAR	-0.121	-0.081	-0.297	1.000					
SIZE	0.233	-0.031	-0.251	0.019	1.000				
AGE	0.192	0.172	0.137	-0.382	-0.386	1.000			
GDP	-0.020	0.043	-0.223	0.157	0.062	0.000	1.000		
INF	0.015	-0.013	0.199	-0.251	-0.054	0.000	-0.442	1.000	
MPR	-0.078	0.186	-0.127	-0.126	0.006	0.000	-0.419	0.312	1.000

Source: Author's estimation

Return on Asset (ROA)									
Var.	1	2	3	4	5	6	7	8	9
EVA	1.000								
NPL	-0.104	1.000							
LAR	0.103	-0.216	1.000						
CAR	-0.112	-0.082	-0.212	1.000					
SIZE	0.201	-0.032	-0.151	0.012	1.000				
AGE	0.182	0.161	0.135	-0.371	-0.371	1.000			
GDP	-0.021	0.041	-0.211	0.152	0.041	0.000	1.000		
INF	0.014	-0.012	0.197	-0.237	-0.052	0.000	-0.446	1.000	
MPR	-0.076	0.182	-0.104	-0.108	0.004	0.000	-0.439	0.316	1.000

Source: Author's estimation

Table 2 shows that multi co linearity is not a problem in the current investigation, which is another observation. This is due to the fact that all correlation coefficients are below 0.5. These numbers likewise fall below the threshold value of 0.8, which denotes a serious multi co linearity issue.

VI. REGRESSION RESULTS

The findings of the Hausman test followed by the random effect assessment of the impact of non-performing loans on the financial performance of commercial banks are shown in Table 5. Both the

ROA and EVA models' results are shown. Both return on asset and economic value-added are observed to be negatively impacted by non-performing loans, which is consistent with the a priori expectation for both measures but statistically significant for the latter. According to the coefficients, a 1% increase (down) in non-performing loans causes, respectively, a 0.03% reduction (rise) and a 17.48% increase (decrease) in return on asset and economic value added. High interest rates set by banks on disbursed loans are to blame for the adverse effect.

Table-3: Hausman specification test results (ROA Model)

Test summary	Chi-square statistics	Chi-square d. f.	Probability
Cross-section	1.9723	6.5000	0.9510

Source: Author's estimation

Table-4: Hausman specification test results (EVA Model)

Test summary	Chi-square statistics	Chi-square d. f.	Probability
Cross-section	1.1203	6.5000	0.8542

Source: Author's estimation

Customers are therefore prone to default on loans, which forces banks to set aside more money for bad loans and has a negative impact on their profit and financial performance. The results of earlier research by Ebenezer and Omar (2016), Rwayitare et al. (2016), Embaye et al. (2017), Oketch et al. (2018), Ekinici and Poyraz (2019), Herath et al. (2021), and Yeasin (2022) are in agreement with this one.

Table-5: Effect of credit risk on financial performance results

Var.	ROA Model			EVA Model		
	Coefficient	Std. Error	Prob.	Coefficient	Std. Error	Prob.
Constant	0.0447	0.4870	0.3814	-0.0362	0.0291	0.6621
NPL	5.7102	11.3721	0.1562	-17.0781	12.0911	0.0381
LAR	0.1722	0.1300	0.4612	0.0221	0.1231	0.5231
CAR	0.5623	0.5478	0.8523	0.1882	0.2262	0.0182
SIZE	0.2315	0.2113	0.2314	0.0825	0.1962	0.0825
AGE	17.5260	15.5170	0.0243	13.8125	3.0215	13.8125
GDP	3.3456	3.1718	0.0266	2.3975	0.7562	0.8712
INF	0.0513	0.0485	0.0461	0.0221	0.0231	0.7921
MPR	0.1421	0.1399	0.0162	0.0981	0.2917	0.5132
R-Squared	0.7517			0.6812		
Adj. R-Squared	0.7182			0.6127		
Chi-Square	22.3791		0.0054	23.3156		0.0028

Source: Author's estimation

Additionally, in line with the a priori expectation, the data show a positive but unimportant association between the loans to advances ratio and both financial performance indicators (return on asset and economic value added). The coefficients show that for every 1% rise (reduction) in the loans and advances ratio, the return on assets and economic value added change by 0.01% and 3.51%,

respectively. Even if it's unimportant, the implication is that a high loan-to-advance ratio indicates the bank's capacity to quickly turn its assets into cash by securing sufficient funding. A bank with greater liquidity can lower its insolvency risk and, as a result, avoid any negative effects on its financial performance.

The outcomes of the return on asset and economic value added calculations are consistent when it comes to the control factors. According to the study, there is a correlation between bank size, age, GDP, inflation, and the financial performance metrics of return on asset and economic value added. The monetary policy rate has a detrimental impact on economic value-added and return on assets. These results are in line with what was predicted a priori as well.

According to the study, a 1% change in bank size results in an increase (reduction) in return on asset and economic value-added of 0.002% and 0.43%, respectively. For return on asset, the relationship is inconsequential. The finding's implication is that commercial banks in India perform financially better as their size grows.

VII. CONCLUSIONS AND POLICY RECOMMENDATIONS

This study focuses on non-performing loans as it examines how credit risk affects commercial banks' financial performance. The study does this by using panel data from 15 Indian commercial banks from 2013 to 2018. Economic value-added and return on asset are used to gauge the financial performance of the chosen banks. In addition, the study uses control variables such bank size, bank age, GDP, inflation, and monetary policy rate. The study uses the random effect estimator after the Hausman specification test.

Non-performing loans, according to the study, have a detrimental impact on the financial performance of the chosen commercial banks. The capital adequacy ratio has also shown to have a positive (negative) impact on the economic value-added measure known as return on assets. Despite being small, the loans and advances ratio has a beneficial impact on both financial performance metrics. In terms of the control variables, the study has shown that monetary policy rate has a negative impact on financial performance, whereas the effects of bank size, age, gross domestic product, and inflation are positive. The trustworthiness and solidity of the data acquired are also confirmed by the diagnostic tests that were performed. The study therefore draws the conclusion that non-performing loans are a crucial factor in determining the financial performance of commercial banks.

The study's key policy implications for Indian's financial industry are based on the findings. First, it is advised that commercial banks adopt strict credit risk management policies that will be periodically updated to offer actions and processes to grant and monitor credit risk in light of the inverse link between non-performing loans and financial performance. Similar to this, the depreciable assets pledged as security to the banks should have their value periodically (probably annually) assessed to account for a fall in their worth. Additionally, the commercial banks need to make sure that collateral documentation is gathered and verified for authenticity and completeness before being used.

Additionally, top management of commercial banks should give risk management staff training as soon as possible, especially those who are involved in loan distribution, monitoring, and recovery. Non-performing loans will be decreased, if not completely eliminated, if the procedures mentioned are properly implemented, and commercial banks' financial performance will be improved.

Last but not least, given the association between bank size and financial performance, it is crucial for management of commercial banks to be creative and provide new products to the market in order to increase their revenue and improve their performance. Commercial bank managers should invest in cutting-edge technology and open new branches in order to diversify their operational activities. In order to obtain new clients who would raise their deposits and ultimately enhance financial

performance, commercial bank managers need also take steps to reclaim the trust of the Indian people.

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